Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-290

Navy Multiband Terminal (NMT)

As of FY 2015 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

Table of Contents

Common Acronyms and Abbreviations

Acq O&M - Acquisition-Related Operations and Maintenance
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
BA - Budget Authority/Budget Activity
BY - Base Year
DAMIR - Defense Acquisition Management Information Retrieval
Dev Est - Development Estimate
DoD - Department of Defense
DSN - Defense Switched Network
Econ - Economic
Eng - Engineering
Est - Estimating
FMS - Foreign Military Sales
FY - Fiscal Year
IOC - Initial Operational Capability
$K - Thousands of Dollars
LRIP - Low Rate Initial Production
$M - Millions of Dollars
MILCON - Military Construction
N/A - Not Applicable
O&S - Operating and Support
Oth - Other
PAUC - Program Acquisition Unit Cost
PB - President's Budget
PE - Program Element
Proc - Procurement
Prod Est - Production Estimate
QR - Quantity Related
Qty - Quantity
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
Sch - Schedule
Spt - Support
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting

Program Information

Program Name

Navy Multiband Terminal (NMT)

DoD Component

Navy

Responsible Office

Responsible Office

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References

SAR Baseline (Production Estimate)

Navy Acquisition Executive (NAE) Approved Acquisition Program Baseline (APB) dated October 4, 2010

Approved APB

Navy Acquisition Executive (NAE) Approved Acquisition Program Baseline (APB) dated April 10, 2013

Mission and Description

The Navy Multiband Terminal (NMT) Program is the next generation maritime military satellite communications terminal. The NMT Program is the required Navy component to the Advanced Extremely High Frequency (AEHF) Program for enhancing protected and survivable satellite communications for Naval forces. NMT multiband capabilities will communicate via two way Ka-Band on Wideband Global Satellite Communication (SATCOM) (WGS) and via X-Band on the Defense Satellite Communications System and WGS. NMT will operate in the Extremely High Frequency (EHF)/AEHF Low Data Rate, Medium Data Rate, and Extended Data Rate communication modes. NMT will sustain the Military SATCOM architecture by providing connectivity across the spectrum of mission areas to include land, air, and naval warfare, special operations, strategic nuclear operations, strategic defense, theater missile defense, and space operations and intelligence. The NMT system will replenish and improve on the capabilities of both the MILSTAR system and WGS system by equipping the warfighters with the assured, jam resistant, secure communications as described in the Operational Requirements Documents (ORD) for the joint AEHF Satellite Communications (AFSPC ORD 004-99, October 2000) and WGS System (Wideband Gapfiller System ORD, May 3, 2000), and the NMT Capability Production Document (NMT CPD 769-6F-08, November 18, 2008). The AEHF system will provide crosslinks within the constellation as well as between AEHF satellites and MILSTAR satellites in the backwards-compatible mode. Mission requirements specific to Navy operations, including threat levels and scenarios, are contained in the AEHF ORD. NMT will be a FORCEnet enabler by providing critical protected bandwidth for warfighter information services.

Executive Summary

The NMT program's Full Rate Production APB was approved by the Assistant Secretary of the Navy Research, Development, and Acquisition on April 10, 2013. NMT completed its Production Year (PY) 4 buy on June 17, 2013, procuring an additional 20 systems to bring the total FY 2013 buy to 34 systems. Additionally, NMT initiated its PY 5 buy on December 17, 2013, procuring 38 systems. During Over-the-Air and Anti-Jam/Low Probability of Intercept field testing on December 16, 2013, the USS Cole (DDG-67) became the first US Navy platform to achieve operational use of the Advanced Extremely High Frequency (AEHF) capability, using NMT to operate with the Extended Data Rate waveform on an AEHF satellite. NMT is preparing for a Follow-on Operational Test and Evaluation in 4th Quarter FY 2014.

The Advanced Time Division Multiple Access Interface Processor (ATIP) contract for the development and production of ATIP, a 2-layer Ethernet bridging device critical to enhancing NMT functionality, was awarded to Comtech EF Data in Tempe, Arizona, on April 10, 2013. Subsequently, a series of ATIP design reviews were held with Comtech EF Data, culminating with the Critical Design Review on November 4-5, 2013.

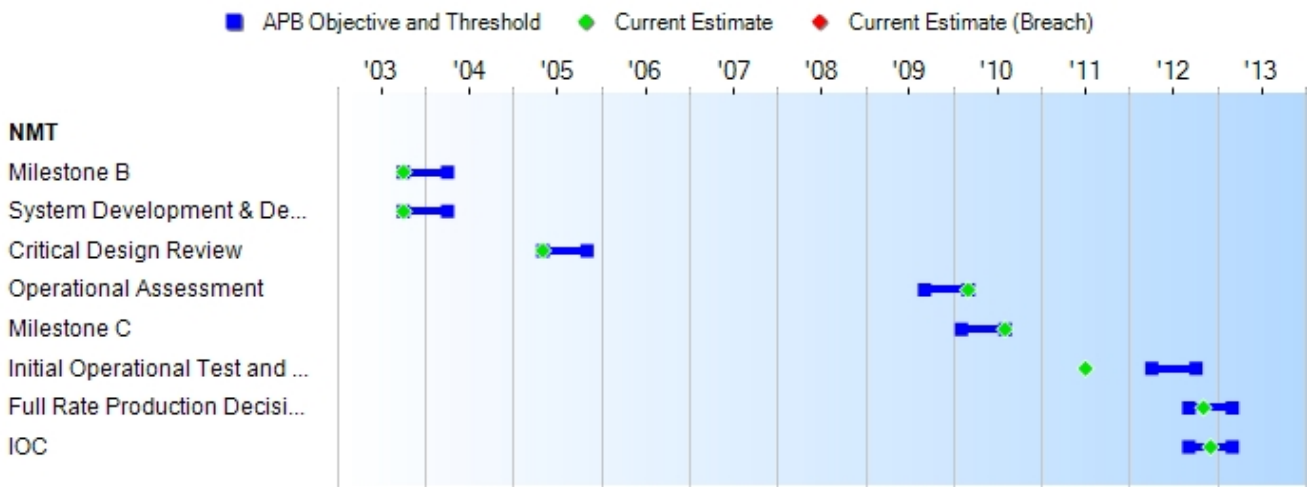
There are no significant software-related issues with this program at this time.

Threshold Breaches

APB Breaches		
Schedule		☐
Performance		☐
Cost	RDT&E	☐
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
O&S Cost		☐
Unit Cost	PAUC	☐
	APUC	☐

Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

Schedule



Milestones	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Current Estimate
Milestone B	OCT 2003	OCT 2003	APR 2004	OCT 2003
System Development & Demonstration Contract Award	OCT 2003	OCT 2003	APR 2004	OCT 2003
Critical Design Review	MAY 2005	MAY 2005	NOV 2005	MAY 2005
Operational Assessment	SEP 2009	SEP 2009	MAR 2010	MAR 2010
Milestone C	FEB 2010	FEB 2010	AUG 2010	AUG 2010
Initial Operational Test and Evaluation (Start)	APR 2012	APR 2012	OCT 2012	JUL 2011
Full Rate Production Decision Review	SEP 2012	SEP 2012	MAR 2013	NOV 2012
IOC	SEP 2012	SEP 2012	MAR 2013	DEC 2012

Change Explanations

None

Performance

Characteristics	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Demonstrated Performance	Current Estimate
NMT Antenna Control Coverage	The NMT shall be capable of pointing and tracking satellites with elevation angles of 0 deg (20 deg for the mast) above the horizon and 360 deg in azimuth with full platform dynamics. In the absence of sea state or submarine dynamics, the antenna shall have the capability to point at satellites down to 0 deg relative to the horizon.	The NMT shall be capable of pointing and tracking satellites with elevation angles of 0 deg (20 deg for the mast) above the horizon and 360 deg in azimuth with full platform dynamics. In the absence of sea state or submarine dynamics, the antenna shall have the capability to point at satellites down to 0 deg relative to the horizon.	The NMT shall be capable of pointing and tracking satellites with elevation angles of 10 deg (20 deg for the mast) above the horizon and 360 deg in azimuth with full platform dynamics.	Demonstrat-ed capability to acquire and track Milstar, WGS, and DSCS satellites.	The NMT shall be capable of pointing and tracking satellites with elevation angles of 0 deg (20 deg for the mast) above the horizon and 360 deg in azimuth with full platform dynamics. In the absence of sea state or submarine dynamics, the antenna shall have the capability to point at satellites down to 0 deg relative to the horizon.
Sustainment					
Materiel Availability	>= 0.95	>= 0.95	>= 0.75	Sub: 0.963 Ship: 0.932 Shore: 0.834	>= 0.95
Operational Availability (Ao)	>0.999 (sub) > 0.999 (ship/shore)	>0.999 (sub) > 0.999 (ship/shore)	> 0.940 (sub) > 0.900 (ship/shore)	Sub: 0.963 Ship: 0.932 Shore: 0.834	>0.999 (sub) > 0.999 (ship/shore)
Reliability					
Materiel Reliability – Mean Time	>= 2200 hrs	>= 2200 hrs	>= 1100 hrs	Ship: 1460 hrs	>= 2200 hrs

Between Failure (MTBF)				(10/15/2012) Shore: 700.5 hrs (10/15/2012) Sub: 216.95 hrs (11/14/2011)		
Materiel Reliability - Mean Time Between Critical Failure (MTBCF)	>= 4200 hrs	>= 4200 hrs	>= 1400 hrs	Ship: 1460 hrs (10/15/2012) Shore: 700.5 hrs (10/15/2012) Sub: 216.95 hrs (11/14/2011)	>= 4200 hrs	
Maintainability						
Mean Time to Repair (MTTR)	<= 1 hr	<= 1 hr	<= 3 hrs	Ship: 1.18 hrs (10/15/2012) Shore: 1.25 hrs (11/14/2011) Sub: 4.3 hrs (11/14/2011)	<= 1 hr	
Cost						
Ownership Cost	<= $298M	<= $298M	<= $328M	$223.5M	<= $298M	(Ch-1)
Survivability						
Survive an EMP (AEHF Only)	NMT AEHF/EHF functionality shall be capable of surviving indirect nuclear detonation EMP and thermal blast effects as defined in ELEX-S-488G and SR-3000 Appendix B-8.4	NMT AEHF/EHF functionality shall be capable of surviving indirect nuclear detonation EMP and thermal blast effects as defined in ELEX-S-488G and SR-3000 Appendix B-8.4	NMT AEHF/EHF functionality shall be capable of surviving indirect nuclear detonation EMP and thermal blast effects as defined in ELEX-S-488G and SR-3000 Appendix B-8.4	TBD	NMT AEHF/EHF functionality shall be capable of surviving indirect nuclear detonation EMP and thermal blast effects as defined in ELEX-S-488G and SR-3000 Appendix B-8.4	
NMT Multiband Terminal Operations	NMT shall provide AEHF/EHF capability	NMT shall provide AEHF/EHF capability	NMT shall provide AEHF/EHF capability	TBD	NMT shall provide AEHF/EHF capability	

	with two-way military Ka-band (ship only), GBS (sub/ship) and X-band (ship /subs) simultan-eously. The NMT shall operate in the EHF/AEHF LDR, MDR, and XDR communica-tion modes.	with two-way military Ka-band (ship only), GBS (sub/ship) and X-band (ship /subs) simultan-eously. The NMT shall operate in the EHF/AEHF LDR, MDR, and XDR communica-tion modes.	with two-way military Ka-band (ship only), GBS (sub/ship) and X-band (ship/subs). The NMT shall operate in the EHF/AEHF LDR, MDR, and XDR communica-tion modes.		with two-way military Ka-band (ship only), GBS (sub/ship) and X-band (ship /subs) simultaneou-sly. The NMT shall operate in the EHF/AEHF LDR, MDR, and XDR communicat-ion modes.
Net-Ready	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for transition to Net-Centric military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1 2) DISR mandated	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for transition to Net-Centric military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1 2) DISR mandated	The system must fully support execution of joint critical operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1 2) DISR mandated GIG KIPs	Interoperabil-ity: NMT is capable of supporting operations in the joint operations environment. The NMT interfaced and operated with other communicat-ions systems over Milstar, WGS, and DSCS satellite systems. The NMTs conducted end-to-end communicat-ions with other NMTs and legacy EHF and SHF terminals. During testing and ongoing operations,	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for transition to Net-Centric military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1 2) DISR mandated

	GIG KIPs identified in the KIP declaration table 3) NCOW RM Enterprise Services 4) Information assurance requirements resulting in issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	GIG KIPs identified in the KIP declaration table 3) NCOW RM Enterprise Services 4) Information assurance requirements resulting in issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	identified in the KIP declaration table 3) NCOW RM Enterprise Services 4) Information assurance requirements resulting in issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	the Navy sent a large number of e-mails through the Secure Internet Protocol Router Network (SIPRNET) as their preferred mode of communicat-ions. Information Assurance: The Navy Information Operations Command performed information assurance testing during the integrated test period.	GIG KIPs identified in the KIP declaration table 3) NCOW RM Enterprise Services 4) Information assurance requirements resulting in issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.

Classified Performance information is provided in the classified annex to this submission.

Requirements Source

Capability Production Document (CPD) dated November 18, 2008

Change Explanations

(Ch-1) The ownership cost current estimate changed from $257.0M to <= $298M to reflect the cost objective in the April 2013 APB.

Memo

Note for Shore (for MTBF and MTBCF): Represents IOT&E and Verification of Correction of Deficiencies testing results; mission impact deemed insignificant due to multiple terminals at Shore site.

Note for Sub (for MTBF, MTBCF and MTTR): Represents IOT&E hours; test duration limit for Submarines.

Acronyms and Abbreviations

AEHF - Advanced Extremely High Frequency
ATO - Approval to Operate
bps - bits per second
CEVR - Circularly Equivalent Vulnerability Radius
CPD - Capability Production Document
DAA - Designated Approval Authority
deg - degree
DISR - DoD Information Standards Registry
DSCS - Defense Satellite Communication System
EHF - Extremely High Frequency
EMP - Electro Magnetic Pulse
ft - feet
GBS - Global Broadcast Service
GIG - Global Information Grid
HGEC - High Gain Earth Coverage
HRCA - High Resolution Coverage Area
hrs - hours
IOT&E - Initial Operational Test and Evaluation
IT - Information Technology
KIP - Key Interface Profile
LDR - Low Data Rate
MDR - Medium Data Rate
MRCA - Medium Resolution Coverage Area
NCOW RM - Net-Centric Operational Warfare Reference Model
nm - nautical mile
NMT - Navy Multiband Terminal
SHF - Super High Frequency
sub - submarine
TTY - Teletype
TV - Technical View
WGS - Wideband Global SATCOM
XDR - Extended Data Rate

Track to Budget

RDT&E

Appn		BA	PE		
Navy	1319	07	0303109N		
	Project		**Name**		
	X0728		Navy Multiband Terminal	(Shared)	
	X9889		Navy Multiband Terminal	(Shared)	(Sunk)

Procurement

Appn		BA	PE
Navy	1810	02	0303109N
	Line Item		**Name**
	321600		Navy Multiband Terminal

Line item 9020 is a shared control number; therefore, it is not included in the NMT PB baseline.

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

Appropriation	BY2002 $M			BY2002 $M	TY $M		
	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Prod Est	Current APB Production Objective	Current Estimate
RDT&E	555.9	564.1	620.5	564.9	631.3	642.4	643.9
Procurement	962.0	964.3	1060.7	976.3	1221.7	1254.3	1278.0
Flyaway	--	--	--	976.3	--	--	1278.0
Recurring	--	--	--	517.7	--	--	671.7
Non Recurring	--	--	--	458.6	--	--	606.3
Support	--	--	--	0.0	--	--	0.0
Other Support	--	--	--	0.0	--	--	0.0
Initial Spares	--	--	--	0.0	--	--	0.0
MILCON	0.0	0.0	--	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	--	0.0	0.0	0.0	0.0
Total	1517.9	1528.4	N/A	1541.2	1853.0	1896.7	1921.9

Confidence Level for Current APB Cost 73% -

The NMT Cost Section is based on the Naval Center for Cost Analysis (NCCA) Service Cost Position (SCP) memo dated November 5, 2012 which was estimated at the Risk Adjusted Mean (RAM). Estimates for major NMT cost drivers included a high amount of variation using right skewed distributions which resulted in a confidence level of 73% at the risk adjusted mean.

Quantity	SAR Baseline Prod Est	Current APB Production	Current Estimate
RDT&E	28	28	28
Procurement	276	250	250
Total	304	278	278

The inventory objective for NMT remains at 276 but due to overall Navy financial initiatives the platform quantity has been reduced to 250.

The NMT unit of measure is defined as a single terminal, to include the Communication Group, Antennas, and Radomes.

Cost and Funding

Funding Summary

Appropriation and Quantity Summary
FY2015 President's Budget / December 2013 SAR (TY$ M)

Appropriation	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
RDT&E	630.0	12.4	1.5	0.0	0.0	0.0	0.0	0.0	643.9
Procurement	436.6	183.6	272.1	119.1	50.8	71.0	72.1	72.7	1278.0
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2015 Total	1066.6	196.0	273.6	119.1	50.8	71.0	72.1	72.7	1921.9
PB 2014 Total	1093.1	220.2	279.6	130.7	57.1	58.0	64.2	0.0	1902.9
Delta	-26.5	-24.2	-6.0	-11.6	-6.3	13.0	7.9	72.7	19.0

The Office of the Chief of Naval Operations added RDT&E funds based on an urgent Fleet need for NMT to operate in Anti-Access/Area Denial areas prior to review/approval by the Navy’s Configuration Steering Board (CSB). The $105.1M associated with this effort is not included in the Cost and Funding until the requirement is confirmed and approved by the CSB.

Quantity	Undistributed	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
Development	28	0	0	0	0	0	0	0	0	28
Production	0	147	41	19	12	4	5	11	11	250
PB 2015 Total	28	147	41	19	12	4	5	11	11	278
PB 2014 Total	28	152	45	29	24	0	0	0	0	278
Delta	0	-5	-4	-10	-12	4	5	11	11	0

Cost and Funding

Annual Funding By Appropriation

Annual Funding TY$
1319 | RDT&E | Research, Development, Test, and Evaluation, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
2001	--	--	--	--	--	--	3.4
2002	--	--	--	--	--	--	6.6
2003	--	--	--	--	--	--	29.4
2004	--	--	--	--	--	--	64.1
2005	--	--	--	--	--	--	58.1
2006	--	--	--	--	--	--	55.4
2007	--	--	--	--	--	--	77.7
2008	--	--	--	--	--	--	87.7
2009	--	--	--	--	--	--	108.7
2010	--	--	--	--	--	--	78.8
2011	--	--	--	--	--	--	18.1
2012	--	--	--	--	--	--	17.5
2013	--	--	--	--	--	--	24.5
2014	--	--	--	--	--	--	12.4
2015	--	--	--	--	--	--	1.5
Subtotal	**28**	**--**	**--**	**--**	**--**	**--**	**643.9**

Annual Funding BY$
1319 | RDT&E | Research, Development, Test, and Evaluation, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2002 $M	Non End Item Recurring Flyaway BY 2002 $M	Non Recurring Flyaway BY 2002 $M	Total Flyaway BY 2002 $M	Total Support BY 2002 $M	Total Program BY 2002 $M
2001	--	--	--	--	--	--	3.4
2002	--	--	--	--	--	--	6.5
2003	--	--	--	--	--	--	28.8
2004	--	--	--	--	--	--	61.0
2005	--	--	--	--	--	--	53.9
2006	--	--	--	--	--	--	49.8
2007	--	--	--	--	--	--	68.2
2008	--	--	--	--	--	--	75.6
2009	--	--	--	--	--	--	92.5
2010	--	--	--	--	--	--	66.1
2011	--	--	--	--	--	--	14.8
2012	--	--	--	--	--	--	14.1
2013	--	--	--	--	--	--	19.4
2014	--	--	--	--	--	--	9.7
2015	--	--	--	--	--	--	1.1
Subtotal	**28**	**--**	**--**	**--**	**--**	**--**	**564.9**

Annual Funding TY$
1810 | Procurement | Other Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
2010	33	52.9	--	8.7	61.6	--	61.6
2011	54	87.4	--	24.1	111.5	--	111.5
2012	26	56.7	--	50.6	107.3	--	107.3
2013	34	100.3	--	55.9	156.2	--	156.2
2014	41	100.0	--	83.6	183.6	--	183.6
2015	19	100.6	--	171.5	272.1	--	272.1
2016	12	43.1	--	76.0	119.1	--	119.1
2017	4	25.0	--	25.8	50.8	--	50.8
2018	5	33.6	--	37.4	71.0	--	71.0
2019	11	40.1	--	32.0	72.1	--	72.1
2020	11	32.0	--	23.7	55.7	--	55.7
2021	--	--	--	10.0	10.0	--	10.0
2022	--	--	--	7.0	7.0	--	7.0
Subtotal	**250**	**671.7**	**--**	**606.3**	**1278.0**	**--**	**1278.0**

Annual Funding BY$
1810 | Procurement | Other Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2002 $M	Non End Item Recurring Flyaway BY 2002 $M	Non Recurring Flyaway BY 2002 $M	Total Flyaway BY 2002 $M	Total Support BY 2002 $M	Total Program BY 2002 $M
2010	33	43.7	--	7.2	50.9	--	50.9
2011	54	71.1	--	19.7	90.8	--	90.8
2012	26	45.4	--	40.5	85.9	--	85.9
2013	34	79.0	--	44.1	123.1	--	123.1
2014	41	77.4	--	64.7	142.1	--	142.1
2015	19	76.4	--	130.3	206.7	--	206.7
2016	12	32.1	--	56.6	88.7	--	88.7
2017	4	18.3	--	18.8	37.1	--	37.1
2018	5	24.1	--	26.7	50.8	--	50.8
2019	11	28.2	--	22.4	50.6	--	50.6
2020	11	22.0	--	16.3	38.3	--	38.3
2021	--	--	--	6.7	6.7	--	6.7
2022	--	--	--	4.6	4.6	--	4.6
Subtotal	**250**	**517.7**	**--**	**458.6**	**976.3**	**--**	**976.3**

Low Rate Initial Production

	Initial LRIP Decision	Current Total LRIP
Approval Date	7/21/2003	2/28/2012
Approved Quantity	90	113
Reference	Milestone B AS	Extended LRIP ADM
Start Year	2010	2010
End Year	2011	2012

The Current Total LRIP Quantity is more than 10% of the total production quantity due to the strong technical performance of NMT during Operational Assessment.

The Total LRIP is also more than 10% in order to ensure a smooth and consistent establishment of production capacity, as well as to take advantage of the significant operational benefits from providing the NMT capability aligned with the satellites with which it will operate.

A Gate-6/Full Rate Production Decision Review was conducted on November 8, 2012 and approved via an Acquisition Decision Memorandum (ADM) on November 30, 2012. This ADM authorized full production and installation for the NMT Program of Record and Other Customers.

Approved Quantity reflects the United States Navy fleet modernization buy, and does not include Other Customer Funds quantities.

Foreign Military Sales

Country	Date of Sale	Quantity	Total Cost $M	Memo
United Kingdom	4/18/2007	12	60.3	
Netherlands	7/26/2006	5	37.9	
Canada	3/30/2006	23	89.0	

Nuclear Costs

None

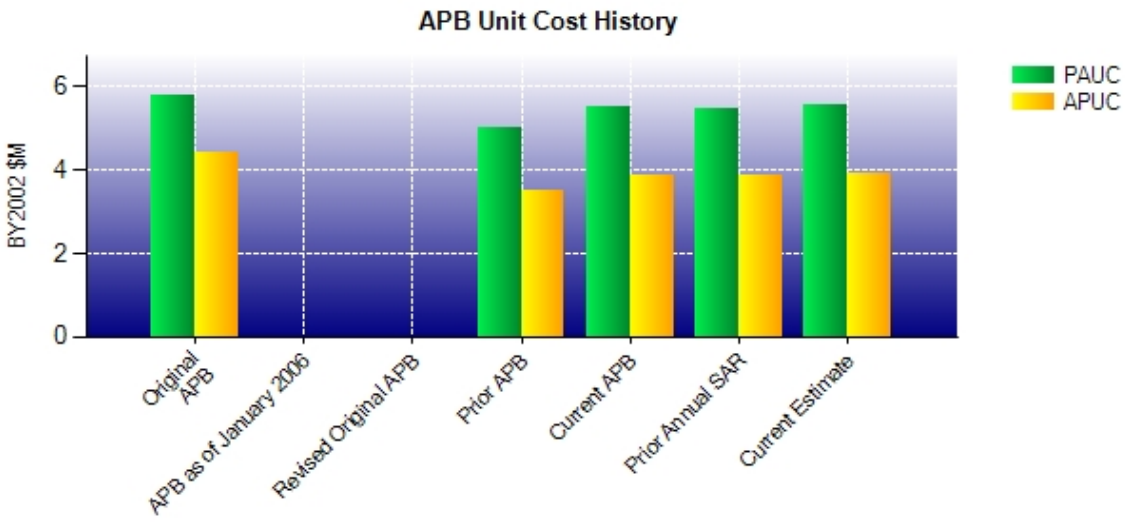
Unit Cost

Unit Cost Report

Unit Cost	BY2002 $M Current UCR Baseline (APR 2013 APB)	BY2002 $M Current Estimate (DEC 2013 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	1528.4	1541.2	
Quantity	278	278	
Unit Cost	5.498	5.544	+0.84
Average Procurement Unit Cost (APUC)			
Cost	964.3	976.3	
Quantity	250	250	
Unit Cost	3.857	3.905	+1.24

Unit Cost	BY2002 $M Original UCR Baseline (DEC 2006 APB)	BY2002 $M Current Estimate (DEC 2013 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	1923.4	1541.2	
Quantity	333	278	
Unit Cost	5.776	5.544	-4.02
Average Procurement Unit Cost (APUC)			
Cost	1345.6	976.3	
Quantity	305	250	
Unit Cost	4.412	3.905	-11.49

Unit Cost History



		BY2002 $M		TY $M	
	Date	PAUC	APUC	PAUC	APUC
Original APB	DEC 2006	5.776	4.412	6.970	5.544
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	OCT 2010	4.993	3.486	6.095	4.426
Current APB	APR 2013	5.498	3.857	6.823	5.017
Prior Annual SAR	DEC 2012	5.488	3.872	6.845	5.070
Current Estimate	DEC 2013	5.544	3.905	6.913	5.112

SAR Unit Cost History

Initial SAR Baseline to Current SAR Baseline (TY $M)

Initial PAUC Dev Est	Changes								PAUC Prod Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
6.970	0.082	0.637	0.034	0.000	-1.210	0.000	-0.418	-0.875	6.095

Current SAR Baseline to Current Estimate (TY $M)

PAUC Prod Est	Changes								PAUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
6.095	0.057	0.296	0.030	0.000	0.435	0.000	0.000	0.818	6.913

Initial SAR Baseline to Current SAR Baseline (TY $M)

Initial APUC Dev Est	Changes								APUC Prod Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
5.544	0.047	0.553	0.038	0.000	-1.295	0.000	-0.461	-1.118	4.426

Current SAR Baseline to Current Estimate (TY $M)

APUC Prod Est	Changes								APUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
4.426	0.060	0.155	0.034	0.000	0.437	0.000	0.000	0.686	5.112

SAR Baseline History

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	Current Estimate
Milestone A	N/A	N/A	N/A	N/A
Milestone B	N/A	OCT 2003	OCT 2003	OCT 2003
Milestone C	N/A	FEB 2010	FEB 2010	AUG 2010
IOC	N/A	SEP 2012	SEP 2012	DEC 2012
Total Cost (TY $M)	N/A	2321.1	1853.0	1921.9
Total Quantity	N/A	333	304	278
Prog. Acq. Unit Cost (PAUC)	N/A	6.970	6.095	6.913

Cost Variance

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Prod Est)	631.3	1221.7	--	1853.0
Previous Changes				
Economic	+1.2	+25.3	--	+26.5
Quantity	--	-76.3	--	-76.3
Schedule	--	+0.4	--	+0.4
Engineering	--	--	--	--
Estimating	+3.0	+96.3	--	+99.3
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+4.2	+45.7	--	+49.9
Current Changes				
Economic	-0.4	-10.3	--	-10.7
Quantity	--	--	--	--
Schedule	--	+8.0	--	+8.0
Engineering	--	--	--	--
Estimating	+8.8	+12.9	--	+21.7
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+8.4	+10.6	--	+19.0
Total Changes	+12.6	+56.3	--	+68.9
CE - Cost Variance	643.9	1278.0	--	1921.9
CE - Cost & Funding	643.9	1278.0	--	1921.9

Summary Base Year 2002 $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Prod Est)	555.9	962.0	--	1517.9
Previous Changes				
Economic	--	--	--	--
Quantity	--	-55.9	--	-55.9
Schedule	--	-0.7	--	-0.7
Engineering	--	--	--	--
Estimating	+1.9	+62.6	--	+64.5
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+1.9	+6.0	--	+7.9
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+7.1	+8.3	--	+15.4
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+7.1	+8.3	--	+15.4
Total Changes	+9.0	+14.3	--	+23.3
CE - Cost Variance	564.9	976.3	--	1541.2
CE - Cost & Funding	564.9	976.3	--	1541.2

Previous Estimate: December 2012

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-0.4
Adjustment for current and prior escalation. (Estimating)	+0.4	+0.4
Revised estimate to better align requirements with funding profile. (Estimating)	+6.7	+8.4
RDT&E Subtotal	+7.1	+8.4

Procurement	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-10.3
Adjustment for current and prior escalation. (Estimating)	+3.9	+4.9
Stretch-out of procurement buy profile from FY 2016 to FY 2020. (Schedule)	0.0	+8.0
Revised estimate to better align requirements with funding profile and current installation availability windows. (Estimating)	+4.4	+8.0
Procurement Subtotal	+8.3	+10.6

Contracts

Appropriation: Procurement	
Contract Name	**NMT Production & Deployment**
Contractor	Raytheon
Contractor Location	Marlboro, MA 01752
Contract Number, Type	N00039-04-C-0012/3, FFP
Award Date	September 07, 2010
Definitization Date	September 07, 2010

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price at Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
641.5	N/A	276	492.1	N/A	250	492.1	492.1

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the potential reduction in inventory objective from 276 to 250 units. The official NMT inventory objective remains at 276 systems; however, in response to overall Navy financial initiatives, the Office of the Chief of Naval Operations has identified potential changes. For example, the Naval Center for Cost Analysis utilized a total reduction of 26 systems in their most recent Cost Review Board, to reflect up to 16 afloat systems decommissioning, as well as a reduction of 10 ashore systems.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this FFP contract.

Deliveries and Expenditures

Delivered to Date	Plan to Date	Actual to Date	Total Quantity	Percent Delivered
Development	28	28	28	100.00%
Production	102	102	250	40.80%
Total Program Quantity Delivered	130	130	278	46.76%

Expended and Appropriated (TY $M)			
Total Acquisition Cost	1921.9	Years Appropriated	14
Expended to Date	910.4	Percent Years Appropriated	63.64%
Percent Expended	47.37%	Appropriated to Date	1262.6
Total Funding Years	22	Percent Appropriated	65.70%

The above data is current as of 2/28/2014.

Production Deliveries to Date reflect United States Navy fleet modernization buys, and do not include Other Customer Funds quantities.

Operating and Support Cost

NMT

Assumptions and Ground Rules

Cost Estimate Reference:
The total O&S costs are based on methodologies from the NMT November 2012 Naval Center for Cost Analysis (NCCA) Cost Estimate.

Sustainment Strategy:
1. O&S costs are the sum of all costs resulting from the operation, maintenance and support of NMT terminals after acceptance into the Navy Inventory.
2. Operating costs are the sum of the costs of operational personnel, facilities, and software maintenance.
3. Support costs include depot maintenance, sustaining support, In Service Engineering Activity (ISEA), program management, system engineering, system test & evaluation, and facilities costs.
4. The prime equipment inventory at Full Operational Capability (FOC) will consist of 250 systems (131 Ships, 74 Submarines, 32 Shores, 8 Trainers and 5 Test systems), based on the November 2012 NCCA Cost Estimate results. O&S costs are assumed to extend 10 years beyond FOC.

Antecedent Information:
The Navy Extremely High Frequency Satellite Program (NESP) and WSC-6 Super High Frequency (SHF) programs were established to satisfy an array of requirements and missions. Throughout the lifecycle of these systems, several of these requirements and missions were no longer needed. The NMT program will assume some of these requirements and missions, as well as satisfy requirements and missions which neither the NESP nor WSC-6 were tasked. Due to this fractional overlap, it is undetermined what fraction of the NESP and WSC-6 program costs could truly be considered antecedent. This undetermined fractional overlap is also the reason the cost data was not readily available when the request came to list NESP, WSC-6, and any other antecedent program costs. Determining what fraction of the NESP and WSC-6 costs could be considered antecedent would take significant time and resources. Therefore, NESP and WSC-6 SHF are antecedent programs to NMT, but program costs are not readily available.

Unitized O&S Costs BY2002 $K		
Cost Element	**NMT Avg. Annual Cost Per System**	**No Antecedent (Antecedent) N/A**
Unit-Level Manpower	19.400	0.000
Unit Operations	0.000	0.000
Maintenance	0.500	0.000
Sustaining Support	12.000	0.000
Continuing System Improvements	0.000	0.000
Indirect Support	19.800	0.000
Other	0.000	0.000
Total	51.700	--

Unitized Cost Comments:

The unit of measure, excluding Unit-Level Manpower, is Total BY 2002 O&S dollars from FY 2012 to FY 2032, divided by the total years (21). These totals were further divided by the total number of NMT systems (250). Quantities and dollar values reflect the methodologies from the November 2012 NCCA Cost Estimate. Unit-Level Manpower costs are not included in the Total O&S costs because they are externally funded.

	Total O&S Cost $M			
	Current Production APB Objective/Threshold		**Current Estimate**	
	NMT		**NMT**	**No Antecedent (Antecedent)**
Base Year	157.6	173.4	169.3	N/A
Then Year	223.5	N/A	246.7	N/A

Total O&S Costs Comments:

The O&S Cost variance from the previous SAR is driven by a change in FOC date, which is caused by FY 2013 - 2017 Other Procurement, Navy funding reductions.

O&S Cost Variance		
Category	**Base Year 2002 $M**	**Change Explanation**
Prior SAR Total O&S Estimate December 2012	157.40	
Cost Estimating Methodology	0.00	
Cost Data Update	0.00	
Labor Rate	0.00	
Energy Rate	0.00	
Technical Input	0.00	
Programmatic/Planning Factors	+11.90	FOC moved from FY 2019 to FY 2022, causing an extension to the O&S tail and corresponding cost increase.
Other	0.00	
Total Changes	11.90	
Current Estimate	169.39	

The decrease in O&S costs from 2011 to 2012 was a result of the November 2012 Service Cost Position.

Disposal Costs:

The Total NMT Disposal Costs are $0.3M in BY 2002 and $0.4M in TY. Total O&S costs in the APB include demilitarization and disposal, but the costs are not included in the Current Estimate.